NPTEL
NPTEL ONLINE COURSE
Discrete Mathematics
Relations
Cartesian Product
With
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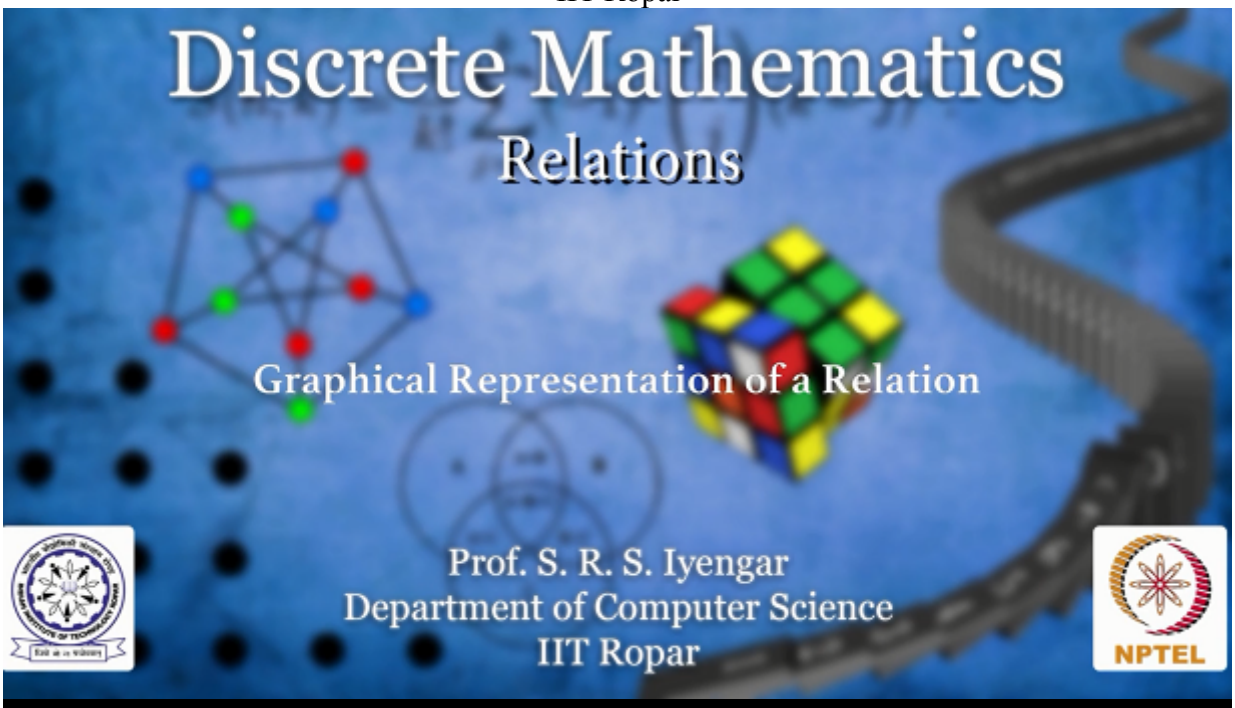
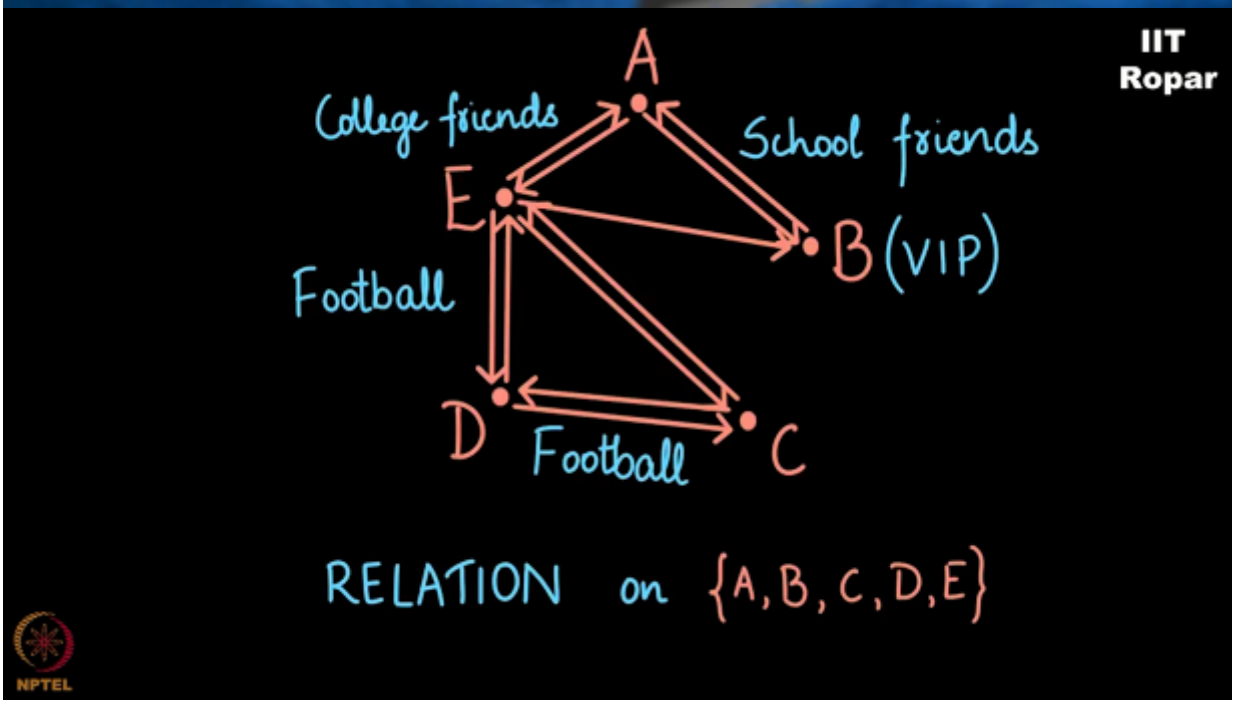
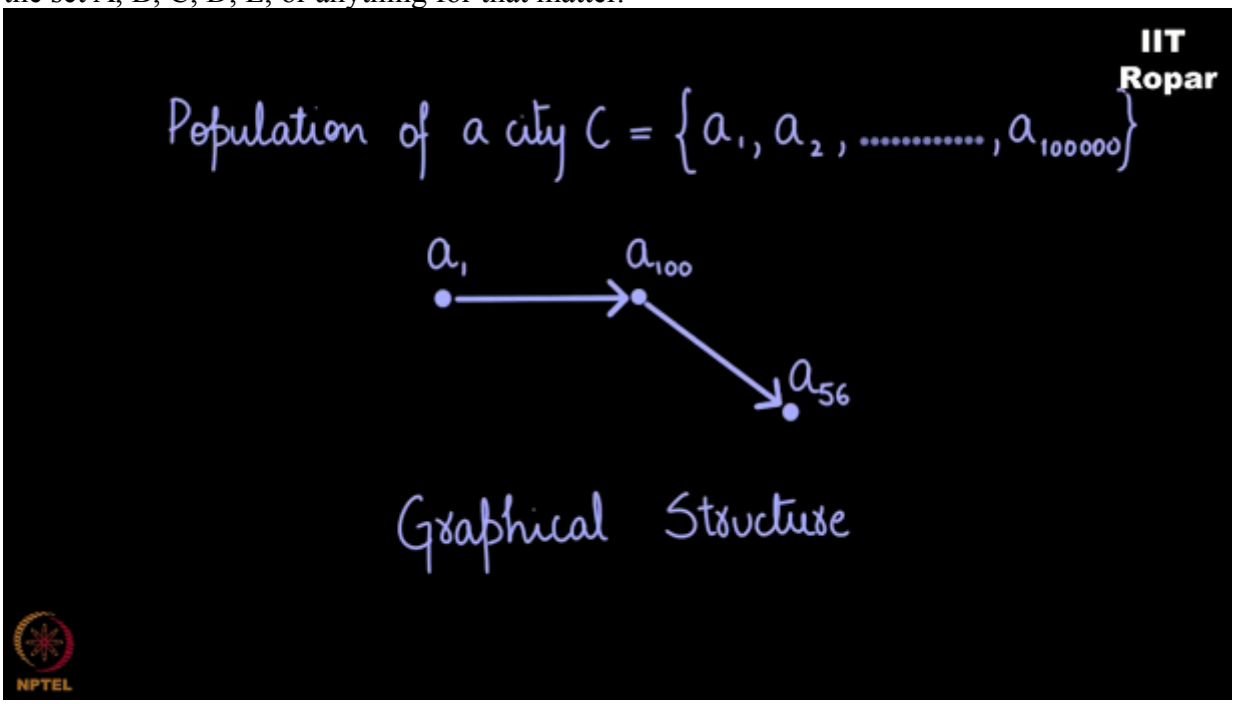




Let us consider the friends A, B, C, D and E; let us denote them by dots. Let's assume A and B were school friends, they know each other very well, B also knows A very well, they are school friends, and A and E were, let's say, college friends. And given that A knows B and A also knows E, A and B being school friends, B happens to be a VIP, he is a very well known personality, and hence E also knows B. B is very famous, so famous that he doesn't know a lot of people, but a lot of people know him. Because of A, E is aware of B's presence, but B doesn't know E, there is every possibility, right.
And E, let's say, knows D, because he plays football with D, and D also knows E. D plays football with C as well, so C also knows D. Given that E knows D and D know C, one find D introduces E to C and they know each other, right. This can be such a complicated relationship. It's possible is all I meant, right. We would like to call such a thing as a relation, a relation on the set A, B, C, D, E, or anything for that matter.



What I can now do is I can take the population of our city, let's say, a1, a2 and a100,000 people in a place, one lakh people in a place, let's say, this is a city C, I can note the relationship of people here. Let's say, a1 knows a100 and a100 may not know a1, a100 might know a56 and so on. You see, in this I can write down all 100,000 people and I can understand the relationship with this kind of a graphical structure. By graphical structure, I mean just by arrows, I can record or take a look at or make a note of the kind of relationships that they have with each other.